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(57) [Abridgement]

[Subject]

The polyvinyl acetal composition which was excellent in heat-resistant stability, and the interlayer for glass laminates which was excellent in heat-resistant stability are offered.

[Settlement means]

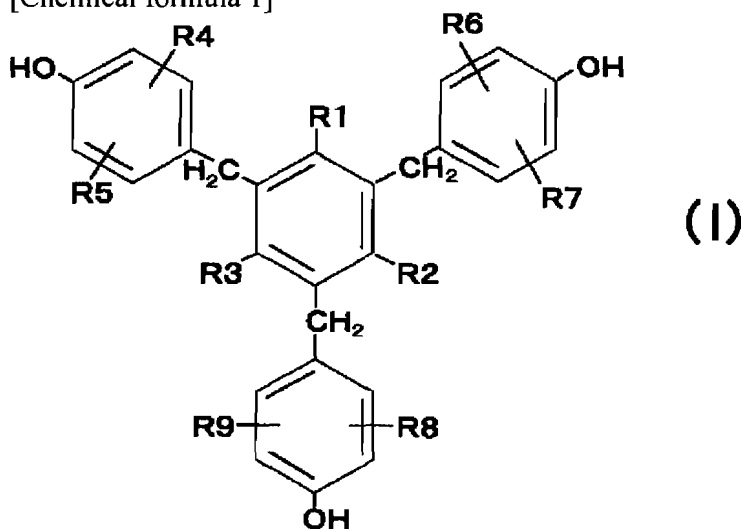
In the composition containing the compound represented with polyvinyl acetal and general formula (I) The polyvinyl acetal composition which carries out 0.01-3 weight-part inclusion of the compound represented with general formula (I) to this polyvinyl acetal 100 weight part is excellent in heat-resistant stability, and is used suitably for the interlayer for glass laminates.

[Claim]

[Claim 1]

Polyvinyl acetal composition which carries out 0.01-3 weight-part inclusion of the compound represented with following general formula (I) to this polyvinyl acetal 100 weight part in the composition containing the compound represented with polyvinyl acetal and following general formula (I).

[Chemical formula 1]



(R1-R3 show the hydrocarbon group of 1-2 carbon numbers, and R4-R9 show the hydrocarbon group of the carbon numbers 1-4, respectively.)

[Claim 2]

The interlayer for glass laminates which consists of polyvinyl acetal composition given in Claim 1.

[Detailed Description of the Invention]

[0001]

[Technological Field of the Invention]

this invention relates to the interlayer for glass laminates using the polyvinyl acetal composition and it which were excellent in heat-resistant stability.

[0002]

[Conventional technology]

Conventionally, polyvinyl acetal acetal-izes polyvinyl alcohol (henceforth "PVA") by aldehyde, is manufactured, and is industrially used widely in applications, such as a coating material, adhesives, and safety-glass interlayer.

[0003]

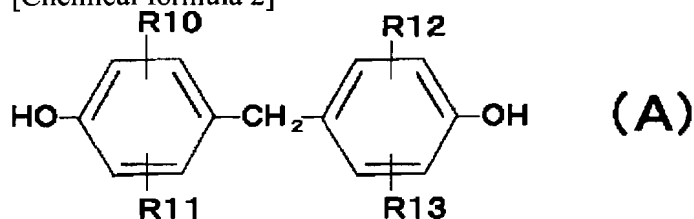
However, heat-resistant stability of polyvinyl acetal is insufficient, for example, there is a problem which the grain, a solution, a film, mold goods, etc. color by thermal deterioration.

[0004]

Various procedures are proposed for these problem amelioration. For example, the procedure of blending with polyvinyl acetal the compound shown with a following general formula (A) is indicated by the No. Japan Unexamined Patent Publication Showa 54-125291 official report.

[0005]

[Chemical formula 2]



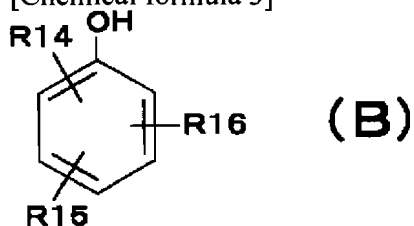
(R10-R13 show the hydrocarbon group of the carbon numbers 1-4, respectively.)

[0006]

Moreover, the procedure of blending with polyvinyl acetal the compound shown with the following general formula (B) or (C) is indicated by the No. Japan Unexamined Patent Publication Showa 54-125292 official report.

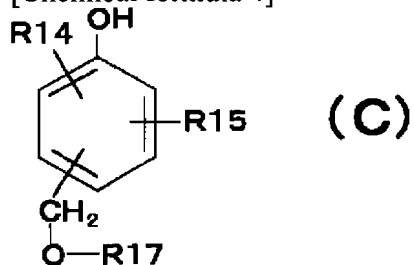
[0007]

[Chemical formula 3]



[0008]

[Chemical formula 4]



[0009]

(R16 shows the hydrocarbon group of hydrogen or the carbon numbers 1-4 out of [R14] the above-mentioned general formula (B) and (C), and R17 shows a methyl group or an ethyl group, respectively.)

[0010]

However the heat-resistant amelioration effect by these procedures Durability is insufficient because of the sublimability of the compound to add etc., or when the compound itself to add forms quinone structure, generate a color on the contrary, or Or in combination with the ultraviolet absorber blended into the interlayer for glass laminates, it is made to color on the contrary and a satisfying enough thing cannot be said.

[0011]

[Problem(s) to be Solved by the Invention]

this invention is made in view of the above-mentioned conventional technology, and the place made into the object is offering the polyvinyl acetal composition which was excellent in heat-resistant stability, and the interlayer for glass laminates which was excellent in heat-resistant stability.

[0012]

[The means for solving a subject]

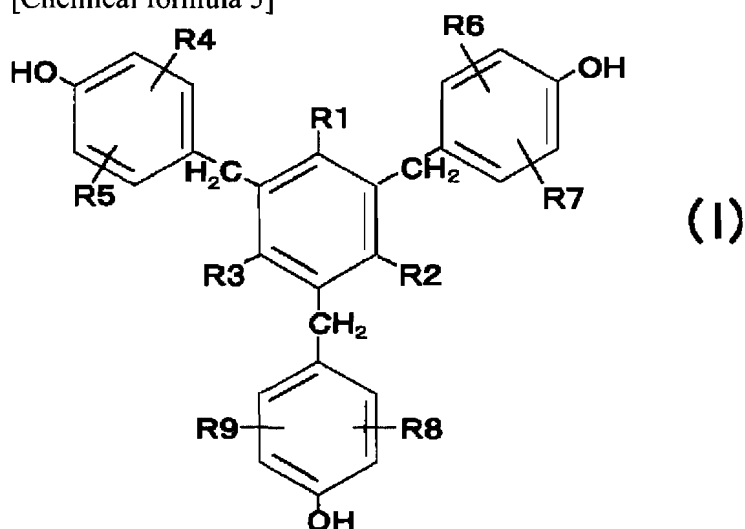
As a result of analyses, various the inventors of this inventions acquire knowledge that the heat-resistant stability excellent in the polyvinyl acetal composition which made polyvinyl acetal contain a specific compound is shown, and come to complete this invention.

[0013]

Namely, in the composition containing the compound by which this invention is represented with polyvinyl acetal and following general formula (I) They are the polyvinyl acetal composition which carries out 0.01-3 weight-part inclusion of the compound represented with following general formula (I) to this polyvinyl acetal 100 weight part, and an interlayer for glass laminates using it.

[0014]

[Chemical formula 5]



[0015]

(In the inside R1-R3 of an upper type, the hydrocarbon group of 1-2 carbon numbers is shown, and R4-R9 show the hydrocarbon group of the carbon numbers 1-4, respectively.)

[0016]

[The gestalt of implementation of invention]

Hereafter, this invention is explained in detail. As an example of a compound (henceforth "compound (I)") represented with the above-mentioned general formula (I) contained in the composition of this invention, 1,3,5-trimethyl 2,4,6-tris(3,5-di-*t*-butyl-4-hydroxybenzyl) benzene, Although 1,3,5-triethyl 2,4,6-tris(3,5-di-*t*-butyl-4-hydroxybenzyl) benzene etc. is mentioned, 1,3,5-trimethyl 2,4,6-tris(3,5-di-*t*-butyl-4-hydroxybenzyl) benzene is especially desirable.

[0017] The rate that polyvinyl acetal of this invention contains compound (I) is 0.02 to 2 weight part preferably 0.01 to 3 weight part to polyvinyl acetal 100 weight part. When less than 0.01 weight parts are not enough as improvement in the heat-resistant stability of polyvinyl acetal composition as for the rate and it exceeds three weight parts, heat becomes easy to color polyvinyl acetal composition.

[0018]

There is no restraint in particular in the polyvinyl acetal used in order to obtain the composition of this invention, and a commercial thing can also be used.

[0019]

Polyvinyl acetal can be obtained, for example in configurations, such as a powder grain and liquid, by using PVA as a feedstock and acetal-izing it by aldehyde. In the polyvinyl acetal used by this invention, the usual PVA obtained by saponifying a carboxylic acid vinyl ester polymer besides the acetal-ized polyvinyl acetal The polyvinyl acetal obtained by using as a feedstock PVA, combining different PVA(s), such as denaturation polyvinyl acetal obtained using PVA which denaturalized by copolymerization, post-denaturation, etc. as a feedstock PVA and denaturation, un-denaturalizing, an average degree of polymerization, and the degree of saponification, two or more sorts is included. A with an average degree of polymerization of about 200 to 4000 which saponified completely selectively the polymer of fatty acid vinyl ester, such as vinyl acetate, and the copolymer thing can be used for Feedstock PVA.

[0020]

Although the procedure of of (1), (2), and (3) which shows PVA below for acetal-izing is common, it is not limited to these.

- (1) Sedimentation :P Aldehyde is added under existence of an acid catalyst in VA aqueous solution, and an acetal-ized reaction is started. Then, it is the procedure of precipitate generating with progress of acetal-izing and progressing a reaction by a heterogeneous system henceforth.
- (2) Solution process :P The solvent of polyvinyl acetal is made to suspend VA powder, aldehyde is added under existence of an acid catalyst, and an acetal-ized reaction is started. It is the procedure of dissolving a reactant in a solvent and progressing a reaction by a homogeneous system after that with progress of acetal-izing.
- (3) Homogeneous system method :P How to progress a reaction by a homogeneous system from beginning to end while adding the bottom of existence of an acid catalyst, and aldehyde in VA aqueous solution, starting an acetal-ized reaction, adding the solvent of the polyvinyl acetal which has compatibility in water before precipitate formation and preventing crystallization of precipitate.

[0021]

As aldehyde used in the acetal-ized reaction, PVA For example, formaldehyde, acetaldehyde, propionaldehyde, There are butyraldehyde, crotonaldehyde, benzaldehyde, etc., and the aldehyde

can use one sort or can also use the polyvinyl acetal obtained by making the reaction system of acetal-izing live together, and using two or more sorts in this invention. Although it is common that an alkaline substance neutralizes an acid catalyst on the occasion of termination of an acetalized reaction, you may make it react with alkylene oxide.

[0022]

The procedure which a restraint in particular does not have in the procedure of obtaining the composition of this invention, and adds compound (I), for example to an acetalized reaction system, The procedure of adding at processes, such as crystallization, filtration, and desiccation, the procedure of adding these processes to the powder granular polyvinyl acetal pass, How to add to the solution or emulsion of polyvinyl acetal, There is a procedure which the solution or compound of polyvinyl acetal used in order to obtain a procedure, a film, moldings, etc. which are added in the coating material containing polyvinyl acetal, adhesives, etc. is made to contain, or a procedure which combined these. Especially, since an effect is demonstrated especially in the stoving process at the time of the procedure of adding compound (I) to an acetalized reaction system and the procedure of adding at the process before the desiccation after termination of an acetalized reaction obtaining polyvinyl acetal by the shape of dry particles, it is desirable.

[0023]

When it faces adding compound (I) to polyvinyl acetal and there is a loss of this compound (I) of this compound by a polyvinyl acetal manufacturing process etc. The amount of addition of this compound is adjusted so that the content of this compound (I) may serve as 0.01 to 3 weight part to polyvinyl acetal 100 weight part in the composition obtained.

[0024]

Although you may add to polyvinyl acetal as it is, a blowout or where emulsification dispersion is carried out, mixing, spraying, immersion, etc. can perform compound (I) to aldehyde, a PVA aqueous solution, the medium for an acetal reaction, an organic solvent, a plasticizer, etc. by the additive arbitrary procedures of blending.

[0025]

As matter which can make the composition of this invention blend and contain various matter, and is made to blend and contain for example, it is uncured -- or a partial cure thermosetting resin (phenol system resin and amino system resin --) bulking agents (clay --) of an inorganic system or an organic system, such as melamine system resin and these modified resins A talc, calcium carbonate, complications-like silica, carbon black, carbon fiber, Plasticizers and ultraviolet absorbers, such as powder of plastics without glass fiber, silica flour zeolite, polyvinyl acetal, and compatibility, pigments (carbon, titanium oxide, a basic zinc chromate system compound, etc.), stabilizers, catalysts, colors, inorganic salt, and surface active agents are mentioned.

[0026]

Although what is usually used as a plastic plasticizer can be used as a plasticizer in the interlayer for glass laminates of this invention The plasticizing ester [triethylene glycol di-2-ethyl butyrate which has an ether linkage in polyvinyl butyral system composition at intramolecular, Triethylene glycol di-2-ethyl hexanoate, di(butoxyethoxyethyl adipate, di-n-hexyl adipate], etc.

are desirable. Although what is usually used as an object for plastics also as an ultraviolet absorber can be used A benzotriazol system ultraviolet absorber [2-(2'-hydroxy-5'-methylphenyl) benzotriazol, 2-(2'-hydroxy-3'-t-butyl-5'-methylphenyl)-5-chlorobenzotriazole], etc. is desirable. Moreover, you may also blend hindered amine system light stabilizer if needed.

[0027]

In the composition of this invention, and the interlayer for glass laminates using it, the rate of making various matter blending and containing can be arbitrarily chosen according to the object.

[0028]

[Execution example]

Hereafter, an execution example and a comparison example explain this invention concretely. In addition, as for the following, as long as there is no notice, a "weight part" and a "weight%" are shown a "part" and "%", respectively.

[0029]

Execution example 1

The heat blowout of 100 copies of PVA(s) of average-degree-of-polymerization 1700 and saponification degree 98.5 mol% was carried out under churning at the water of 900 copies in the reaction container which offered thermoregulation and a churning apparatus. This aqueous solution was maintained at 10DEGC, continuing churning, and 60 copies of hydrochloric acid was added to this 35%. Subsequently, 0.1 copy of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene was dissolved in 57 copies of butyraldehyde as compound (I) there, and per-continuum addition mixing of the whole quantity was carried out in 30 minutes. The additive polyvinyl butyral grain after [of initiation] 15 minutes deposited. Temperature up was carried out to 40DEGC under churning of a reaction system after that, and it held by 40DEGC for 4 hours. After termination of a reaction, aqueous sodium hydroxide was added, this system was neutralized, and it cooled to the room temperature. Subsequently, washing, filtration, desiccation, etc. were performed and the polyvinyl butyral composition in the end of white complications was obtained. The degree of butyral-izing of polyvinyl butyral of the obtained composition was 76 % of the weight. Moreover, the content of the 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene in the obtained polyvinyl butyral composition was 0.07 copy to 100 copies of polyvinyl butyral. The result of having measured color stability as an index of the heat-resistant stability of the obtained composition is shown in Table 1.

[0030]

Execution example 2

As compound (I), 0.05 copy of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene is distributed to the anion nature basin system emulsifier of about 50% of content. After adding in the PVA aqueous solution of 10DEGC under churning in a reaction container, polyvinyl butyral composition was obtained like the execution example 1 except having added continuously, having applied the butyraldehyde of 57 copies for 30 minutes. The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0031]

Execution example 3

Polyvinyl butyral composition was obtained like the execution example 1 except having made the amount of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene into 0.03 copy as compound (I). The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0032]

Execution example 4

Polyvinyl butyral composition was obtained like the execution example 1 except having made the amount of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene into 2.0 copies as compound (I). The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0033]

Execution example 5

Polyvinyl butyral composition was obtained like the execution example 1 except having made the amount of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene into 0.0015 copy as compound (I). The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0034]

Execution example 6

Polyvinyl butyral composition was obtained like the execution example 1 except having made the amount of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene into four copies as compound (I). The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0035]

Execution example 7

Instead of 0.1 copy of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene of the execution example 1, as compound (I) Polyvinyl butyral composition was obtained like the execution example 1 except having used 0.1 copy of 1,3,5-triethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene. The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0036]

Execution example 8

100 copies of PVA(s) of average-degree-of-polymerization 2400 and saponification degree 98.5 mol% were added to it, agitating the mixed solution of 490 copies of methanol in the reaction container equipped with thermoregulation and a churning apparatus, and six copies of 35% hydrochloric acid. Subsequently, added 37 copies of acetaldehyde, and 34 copies of butyraldehyde to the suspension of this PVA grain under churning, it was made to react by temperature 60DEGC for 6 hours, and the methanol solution of the polyvinyl acetal which has an acetoacetal unit and a butyl acetal unit was obtained. It cooled after termination of a reaction, addition mixing of the aqueous sodium hydroxide was carried out, and reaction mixture was neutralized. Furthermore, addition mixing of 0.1 copy of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-

4-hydroxybenzyl) benzene was carried out as compound (I) at the reaction mixture. depositing [add water in this liquid and] grains and drying [wash, filter and] -- powder -- granular polyvinyl acetal composition was obtained. Polyvinyl acetal in the obtained composition 1.9 % of the weight of vinyl acetate units, It was 16.4 % of the weight of vinyl alcohol units, and they were 81.7 % of the weight (the rate of an acetoacetal unit and a butyl acetal unit is 50:50 at a bulk density from measurement by an infrared absorption spectrum) of degrees of acetalization. The result of the content of the above-mentioned compound (I) of the obtained composition and color stability is shown in Table 1.

[0037]

Execution example 9

Instead of 100 copies of PVA(s) of average-degree-of-polymerization [of the execution example 1] 1700, and saponification degree 98.5 mol% 50 copies of PVA(s) of average-degree-of-polymerization 2400 and saponification degree 99 mol% and 50 copies of PVA(s) of average-degree-of-polymerization 500 and saponification degree 98.5 mol% are used together. And polyvinyl butyral composition was obtained like the execution example 1 except having made the amount of the 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene used into 0.2 copy as compound (I). The content of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene of the degree of butyral-izing of polyvinyl butyral in the obtained composition was 0.13 copy to 100 copies of polyvinyl butyral 77% of the weight. The result of the content of the above-mentioned compound (I) of the obtained composition and color stability is shown in Table 1. Polyvinyl butyral composition was obtained like the execution example 1 except having used four copies. The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0038]

Comparison example 1

Polyvinyl butyral composition was obtained like the execution example 1 except having used 0.1 copy of 2,6-di-t-butyl PARAKU resol instead of 0.1 copy of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene. The content of 2,6-di-t-butyl PARAKU resol of the obtained composition and the test result of color stability are shown in Table 1.

[0039]

Comparison example 2

It is made to be the same as that of the execution example 1 except having used 0.05 copy of 2,2'-methylenebis (4-methyl-6-t-butyl phenol) instead of 0.1 copy of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene. Polyvinyl butyral composition was obtained. The content of 2,2'-methylenebis (4-methyl-6-t-butyl phenol) of the obtained composition and the test result of color stability are shown in Table 1.

[0040]

Comparison example 3

Polyvinyl butyral was obtained like the execution example 1 except not having used 1,3,5-trimethyl 2,4,6-tris (3,5-di-t-butyl-4-hydroxybenzyl). The test result of the color stability of the obtained polyvinyl butyral is shown in Table 1.

[0041]

Comparison example 4

Polyvinyl butyral composition was obtained like the execution example 1 except having changed the amount of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene into 0.005 copy as compound (I). The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0042]

Comparison example 5

Polyvinyl butyral composition was obtained like the execution example 1 except having changed the amount of 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene into 5.0 copies as compound (I). The content of the above-mentioned compound (I) of the obtained composition and the test result of color stability are shown in Table 1.

[0043]

The execution examples 10-12 and the comparison example 6

To 900 copies of ethanol / toluene (bulk densities 1/1) mixed solvents 1,3,5-trimethyl 2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl) benzene is shown in Table 2 as 100 copies of polyvinyl butyral obtained by the comparison example 3, and compound (I) -- it added the amount of each every and the mixture solution was carried out. Reduced pressure drying of the obtained liquid was carried out by 20DEGC after the flow casting and the air dried on the polyester sheet, and 300-micron-thick film-like moldings were obtained. After putting this film into the container and carrying out predetermined days (for 2 and 4 or 6 days) heat in the oven of 120DEGC, it took out, and standing to cool was carried out, and by the procedure of (2) of 1 suit of measuring method color stability, it had a value of the yellowness of that surface color, and was considered as the color stability of moldings. In addition, the yellowness on the 0th is an observed value of the film before heat. A test result is shown in Table 2.

[0044]

The execution examples 13-15 and the comparison examples 7-8

From each execution example given in Table 3, and a comparison example, 2-(2'-hydroxy-5'-methylphenyl) benzotriazol was mixed as 100 copies of polyvinyl acetal composition and the ultraviolet absorber which were obtained, and 35 copies of di-n-hexyl adipate was mixed as 0.2 copy and a plasticizer. The twin roll heated by 85DEGC may be used, and the obtained mixture was knead(ed). Heat pressing was carried out to 140DEGC with the press which regulated the obtained seat-like moldings with the spacer, and the 0.8-mm-thick interlayer for glass laminates was obtained. The obtained interlayer was sandwiched from both sides with the float glass with a thickness [3mm] of with an one-side [15cm square] of two sheets, and preliminary adhesion was carried out by the rolling method. Subsequently, it was stuck by pressure for 30 minutes by the pressure of 12kg/cm² with the autoclave of 140DEGC, and the transparent glass laminate was obtained. The procedure of (3) of 1 suit of measuring method color stability estimated heat-resistant stability assessment. A test result is shown in Table 3.

[0045]

[Table 1]

	化合物 (I)		着色安定性 (黄色度)			
	名 称	含有量(部) 1)	0日	2日	4日	6日
実施例1	1,3,5-トリフルオロ-2,4,6-トリメチル-3,5-ジ- <i>t</i> -ブチル-4-ヒドロキシベンゼン	0.073	-1.6	1.0	3.3	4.6
実施例2		0.040	-1.6	1.5	4.0	5.8
実施例3		0.021	-1.0	3.0	6.3	8.0
実施例4		1.556	-0.9	3.3	8.3	9.8
実施例5		0.010	-0.4	7.1	10.9	15.1
実施例6		2.715	-0.3	8.0	12.0	19.3
実施例7		0.076	-1.3	1.7	6.8	12.1
実施例8		0.081	-0.9	3.5	6.4	8.9
実施例9		0.130	1.2	4.2	6.2	9.6
比較例1	2,6-ジ- <i>t</i> -ブチルペラジン	0.056	-1.5	50.1	68.3	82.5
比較例2	2,2'-メチレンビス(4-ブチル-6- <i>t</i> -ブチルフェニル)	0.082	-1.2	13.5	25.0	40.2
比較例3		(無添加)	3.0	66.9	92.0	110.9
比較例4	1,3,5-トリフルオロ-2,4,6-トリメチル-3,5-ジ- <i>t</i> -ブチル-4-ヒドロキシベンゼン	0.003	0.1	10.4	22.1	38.1
比較例5		2.913	0.3	11.3	19.8	33.1

1) : 組成物中、ポリビニルアセタール100部に対する化合物(I)の量(部)。

[0046]

[Table 2]

	化合物(I)の 添加量 1) (部)	着色安定性 (黄色度)			
		0日	2日	4日	6日
比較例6	0	4.1	68.3	95.7	115.9
実施例10	0.02	0.9	6.8	10.1	13.4
実施例11	0.1	1.2	4.2	7.6	9.1
実施例12	2.0	1.3	6.5	11.2	14.4

1) : ポリビニルアセタール100部に対する化合物(I)の添加量(部)。

[0047]

[Table 3]

	使用ポリビニルアセタール 組成物の対応実施例番号	着色安定性 (黄色度)
実施例13	実施例1	1.2
実施例14	実施例5	1.9
実施例15	実施例6	1.8
比較例7	比較例1	5.7
比較例8	比較例3	8.1

[0048]

Measuring method

1. Color Stability

(1) Make into a sample the polyvinyl acetal composition and the 100 mesh-sieve pass article of polyvinyl butyral which were obtained by each execution example and each comparison example, pay a sample to a container, and carry out predetermined days (for 2 and 4 or 6 days) heat in the oven of 120DEGC. A sample is taken out from the oven after predetermined days progress, and standing to cool is carried out.

(2) Subsequently, using the colorimetry color difference meter (Nippon Denshoku Z-1001DP type), the tristimulus values X, Y, and Z of the surface color of the sample were measured, and it asked for yellowness by the following formula. Color stability is shown with the value of this yellowness, the degree of a color is so low that this value is small, and it is shown that color stability is excellent.

$\text{yellowness} = (100) (1.28X - 1.06Z) / Y$ -- in addition, yellowness zero day is a yellowness observed value of the powdered (100 mesh passes) sample before heat.

(3) Perform color assessment of a glass laminate by the procedure of (2). However, the value shown as yellowness lengthens the value measured with the composite glass in the condition that there is no film from the value measured as a glass laminate having contained the film.

[0049]

2. Content of Additive Matter

Polyvinyl acetal composition obtained by each execution example and each comparison example is made into a sample. the liquid which dissolved it in the mixed solvent [ethanol/water =9/1 (bulk density)] -- a high speed liquid chromatography (the Hitachi make --) Under [a fixed quantity / comparison / which created the content of the additive matter beforehand using L-4000UVDTECTOR, 280nm of ultraviolet absorption, and L-6000PUMP / calibration curve]. The value acquired with the fixed quantity was converted into the amount (part) to 100 copies of polyvinyl acetal in the above-mentioned composition, and was made into the content of the additive matter.

[0050]

[The effect of invention]

The polyvinyl acetal composition of this invention is excellent in heat-resistant stability, without spoiling the desirable characteristics of polyvinyl acetal as above-mentioned.